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Dated: 9/16/05

Signature:

Kathryn L. Nash
(Kathryn L. Nash)

Docket No.: 60680-1792
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Thomas J. Smith

Application No.: 10/672,488

Confirmation No.: 8253

Filed: September 26, 2003

Art Unit: 3676

For: PISTON RING HAVING CHROMIUM
COATING

Examiner: Vishal A. Patel

AMENDED APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This appeal is from the decision of the Examiner dated January 10, 2005. The Notice of Appeal was filed on April 11, 2005. An Appeal Brief was filed on June 10, 2005. This Amended Appeal Brief is filed to remedy alleged defects noted by the Examiner in the "Notification of Non-Compliant Appeal Brief" mailed August 17, 2005 (paper no. 20050815).

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is Dana Corporation, Assignee, a corporation organized and existing under the laws of the state of Ohio, and having a place of business at 4500 Dorr Road, Toledo, Ohio 43697.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-9, 12-14, and 16-19 are pending in the present application and all stand finally rejected. Claims 10 and 11 were previously withdrawn from prosecution and claim 15 was previously cancelled. Appellant appeals from the final rejection of claims 1-9, 12-14, and 16-19, which are presented in the Claims Appendix.

IV. STATUS OF AMENDMENTS

Applicant did not attempt to amend the claims after receiving the Final Office Action dated January 10, 2005. Accordingly, there are no outstanding after-final amendments to the claims, and claims 1-9, 12-14 and 16-19 stand rejected for purposes of this appeal.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Applicants' disclosure provides a piston ring (16) having a coating of nodular thin dense chromium (Specification [0001], page 1, lines 2-4).

In one embodiment, the claimed invention is a piston ring (16) comprising a plurality of surfaces (18, 20, 22, 24) (Specification [0012], page 3, lines 11-14, Figures 2 and 3). At least one of the plurality of surfaces (18 or 20) includes a first coating of nodular thin dense chromium (26) (Specification [0013], page 3, lines 15-21, Figures 2 and 3).

In another embodiment, the claimed invention is directed to a piston ring (16) comprising upper and lower radially extending surfaces (18 and 20); radially inner and outer vertical surfaces (22, 24), wherein at least the lower radially extending surface (18) includes a first coating of nodular thin dense chromium (26) (Specification [0013], page 3, lines 15-21, Figures 2 and 3).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-9, 12-14, and 16-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Umezawa* (U.S. Patent No. 3,671,047) (“*Umezawa*”) in view of *Benson et al.* (U.S. Patent No. 5,829,240) (“*Benson*”).

VII. ARGUMENT

A. Issue 1: The Obviousness Rejection is Improperly Based on Non-Analogous Art

In re Oetiker sets forth a two prong test for obviousness stating that “In order to rely on a reference as a basis for rejection of the applicant’s invention the reference must either be in the field of the applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). Here, the Examiner has expressly conceded that the references are not in the same field of endeavor:

“In this case, the reference is not in the field of endeavor (piston rights) . . .”

(See the Office Action dated January 10, 2005; page 3, paragraph 4).

However, the Examiner contends that the *Benson* reference is in the “field of coatings.” The Examiner further states that *Benson* has motivation and that the coating provided by *Benson* would be “a strong and more durable coating.” (See the Office Action dated January 10, 2005; page 3, paragraph 4).

First, and contrary to the Examiner’s statement, the *Benson* reference is not in the field of coatings. Indeed, *Benson* discloses an improved bearing surface on spinning rings used in a textile yarn spinning process. In fact, *Benson* explicitly states in the “FIELD OF THE INVENTION” section that, “the present invention relates to a spinning ring for textile yarn spinning, and more specifically relating to a spinning ring having an improved bearing surface for supporting a traveler.” Clearly, *Benson*

is in the field of textile yarn spinning; not in the field of coatings as claimed by the Examiner.

Further, *Umezawa* has a U.S. classification of 277/235 titled as “Seal for a Joint or Juncture” whereas *Benson* has a U.S. classification of 57/125 titled as “Textiles: Spinning, Twisting, and Twining/Travelers”. This is further evidence that the two references contain clearly unrelated subject matter.

Second, *Oetiker* further states that “...the courts have recognized the subjective aspects of determining whether an inventor would reasonably be motivated to go to the field in which the examiner found the reference, in order to solve the problem confronting the inventor.” We have reminded ourselves and the PTO that it is necessary to consider ‘the reality of the circumstances’ ... in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.” *Id.* Here, the *Benson* reference fails to meet this criteria.

The inventor in the present case was concerned with the effectiveness of piston rings, not textile yarn spinning. By way of example, the specification specifically states that the inventor needed to develop “an improved piston ring that can withstand the harsh operating environment of today’s engines.” Indeed, one of ordinary skill in the art of high efficiency engines and piston rings would not be reasonably expected to look to the art of textile yarn spinning to improve a piston ring. Therefore, for at least this separate reason, *Benson* is an inappropriate prior art reference under §103.

B. Issue 2: Required Motivation or Suggestion To Combine the References is Lacking

A *prima facie* case of obviousness requires that there be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. See MPEP §2143; *In re Linter*, 458 F.2d 1013, 173 USPQ 560, 562 (CCPA 1972). The

mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Moreover, the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

To sustain an obviousness rejection there must be a teaching or suggestion in the prior art to support the combination and nothing in the *Umezawa* and *Benson* patents teach or suggest combining the references to produce the claimed invention. It is appreciated that reasons or incentives must be provided in order to combine the cited references and it is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. See *Ex parte Skinner*, 2 USPQ2d 1788 (B.P.A.I. 1986) and *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir. 1992).

As described in the specification, an embodiment of a piston ring 16 includes upper and lower radially extending surfaces 18 and 20, respectively. Further, the piston ring 16 includes a radially inner vertical surface 22 and a radially outer vertical surface 24. (See page 3, paragraph [0012] of the present application and Figure 2 illustrated below.)

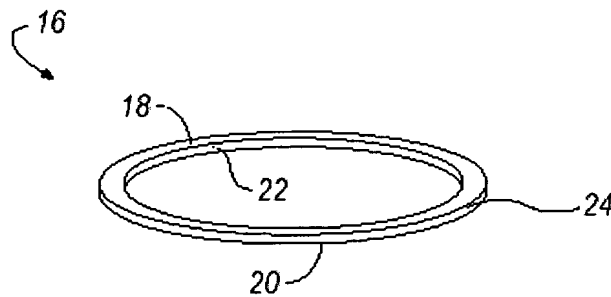


FIG. 2

The upper and lower radially extending surfaces 18, 20 are coated with a first coating 26 of nodular thin dense chromium to improve wear resistance of the piston ring 16 in the piston groove 14. Further, the radially inner vertical surface 22 may also include the first coating 26 of nodular thin dense chromium. (See page 3, paragraph [0013] and Figure 3 below)

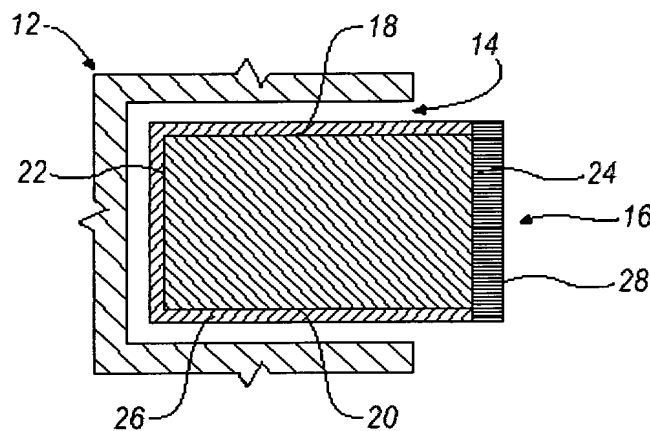


FIG. 3

As acknowledged by the Examiner on page 4, item 7 of the Office Action dated July 23, 2004, the *Umezawa* patent fails to disclose that the first coating is nodular thin dense chromium. To cure the deficiencies of *Umezawa*, the Examiner relied on *Benson* which teaches providing spinning rings for textile spinning having an improved bearing surface formed of hard nodular chromium which is applied by an electrodeposition process.

However, there is no teaching, suggestion or motivation to combine the teachings of *Umezawa* and *Benson* except using hindsight provided by the presently claimed invention. *Benson* teaches using a coating of nodular thin dense chromium to improve the traveler bearing surface of a spinning ring. There is nothing in *Benson* that suggests using the disclosed coating to improve the wear resistance of piston rings disposed in piston grooves of piston that are subjected to elevated temperatures and pressures highly efficient engines. The “teaching-suggestion-motivation test” is has long been held a prerequisite for finding an invention obvious in view cited of prior art. “When the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or motivation to make such a combination.” *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934; 15 USPQ2d 1321, 1323 (Fed. Cir. 1990) “[I]t is impermissible to reconstruct the claimed invention from selected pieces of prior art absent some suggestion, teaching, or motivation in the prior art to do so.” *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143; 227 USPQ 543, 551 (Fed. Cir. 1985) The Examiner has not shown where either *Umezawa* or *Benson* suggests combining the teachings of the two references whereby the piston ring as claimed will be provided. Accordingly, for at least this reason, the claims 1-9, 12-14 and 16-19 are believed to be patentable and it is respectfully requested that these claims be passed to issue.

VIII. CLAIMS APPENDIX

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

XI. EVIDENCE APPENDIX

Applicant submits that this brief does not contain copies of evidence submitted under 37 C.F.R. 1.130, 1.131, or 1.132 or any other evidence entered by the examiner and relied upon by appellant in the appeal because no such evidence has been entered in this matter. However, pursuant to the Office Communication dated

August 17, 2005 an Evidence Appendix (even though there is no evidence associated therewith) is attached hereto and filed herewith as Appendix B.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. 60680-1792 from which the undersigned is authorized to draw.

Dated: 9/16/05

Respectfully submitted,

By 

Kristin L. Murphy

Registration No.: 41,212

Lionel D. Anderson

Registration No.: 50,571

RADER, FISHMAN & GRAUER PLLC

39533 Woodward Avenue, Suite 140

Bloomfield Hills, Michigan 48304

248-594-0647

Attorneys for Applicant

APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/672,488

1. A piston ring comprising:
a plurality of surfaces, wherein at least one of said plurality of surfaces includes a first coating of nodular thin dense chromium.
2. A piston ring according to Claim 1, wherein said first coating has a thickness of about 0.0002" to about 0.0003".
3. A piston ring according to Claim 1, wherein said first coating has a hardness of at least 70 on the Rockwell "C" hardness scale.
4. A piston ring according to Claim 1, wherein said first coating has a static coefficient of friction of about 0.12.
5. A piston ring according to Claim 1, wherein said first coating withstands temperatures of about -400°F to about 1600°F
6. A piston ring according to Claim 1, wherein said plurality of surfaces includes upper and lower radially extending surfaces each including said first coating of nodular thin dense chromium.
7. A piston ring according to Claim 6, wherein said plurality of surfaces includes a radially inner vertical surface including said first coating of nodular thin dense chromium.
8. A piston ring according to Claim 1, wherein said plurality of surfaces includes a radially outer vertical surface having a second coating.

9. A piston ring according to Claim 8, wherein said second coating is a thermal spray coating.

12. A piston ring comprising:
upper and lower radially extending surfaces;
a radially inner vertical surface; and
a radially outer vertical surface;
wherein said lower radially extending surface includes a first coating of nodular thin dense chromium.

13. A piston ring according to Claim 12, wherein said upper radially extending surface includes said first coating of nodular thin dense chromium.

14. A piston ring according to Claim 12, wherein said radially inner vertical surface includes said first coating of nodular thin dense chromium.

16. A piston ring according to Claim 12, wherein said first coating has a hardness of at least 70 on the Rockwell "C" hardness scale.

17. A piston ring according to Claim 12, wherein said first coating has a static coefficient of friction of about 0.12.

18. A piston ring according to Claim 12, wherein said first coating has a thickness of about 0.0002" to about 0.0003".

19. A piston ring according to Claim 12, wherein said radially outer vertical surface includes a second coating of a thermal spray coating.

APPENDIX B

Applicant submits that there has been no evidence submitted by Applicant or entered by the Examiner in this matter.